

San Francisco Bay Conservation and Development Commission

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TO: Bay Fill Policies Working Group Members

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SUBJECT: Bay Fill Working Group Suggested Fill Issues for Habitat Related Projects that the Working Group Has Not Yet Addressed.

A. Review of Habitat Based Issues. At the last Bay Fill Working Group Chair, Barry Nelson, requested that staff review the items previously provided to identify issues the Group has not yet discussed for habitat projects regarding climate change adaptation and Bay fill. The following is the list previously provided, with issues not yet addressed highlight in **yellow**. In addition, staff has provided trial statements for the Working Group to consider, edit or revise as appropriate. These trial statements are underlined.

B. Inventory of Key Issues Related to Climate Change Adaption, Bay Fill and Bay Plan Policies.

1. Minor Amounts of Fill for Habitat Purposes. The Bay Plan policies currently restrict restoration projects to a minor amount of fill for habitat purposes.
 - a. The Bay Plan policies currently only allow a minor amount of fill to enhance or restore fish, other aquatic organisms or wildlife habitat if the Commission finds that no other method of enhancement or restoration except filling is feasible.
 - b. Subtidal areas policies add another test: filling, should be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits.
 - c. Is the restriction to “minor” fill appropriate in these projects?
 - d. If this restriction is lifted, the tests of Section 66605 would continue to be applied: provide the minimum fill; no alternate upland sites; water oriented use; etc.

The Working Group determined that the limitation of “minor amount of fill” for habitat purposes test should be revised or eliminated.

2. Adaptive Management – the policies appear to have two tracts for adaptive management: for project success; and climate change resiliency and adaptation. The working group could address one or the other or both.
 - a. Consider placing fill over time as an adaptive management strategy, what regulatory structure would be appropriate if this approach was taken?

- b. Should habitat based projects be required to plan for and respond to sea level rise, conversely, should they be allowed to convert to subtidal habitat?
- c. Restoration projects often have inexact outcomes particularly when considering rising sea levels. BCDC permits have set requirements. Are inexact outcomes acceptable as long as the project is beneficial? Should the Commission allow for adaptation in its current authorizations given uncertainties?
- d. Development of clear metrics and guidance for staff and project proponents would be helpful.
- e. What does the Commission consider as the life of a proposed habitat project, is it in perpetuity or should it be a limited timeframe?
- f. Current policies require all projects (with limited exceptions) to be designed to be resilient to a mid-century sea level rise projection. If a project is expected to persist beyond 2050, an adaptive management plan is required to address the long-term impacts that will arise based on a risk assessment using the best available science for end of century predictions.

The Working Group has determined that adaptive management is necessary, and discussed metrics based on biological response. However it has not yet discussed the life the projects in consideration of rising seas.

3. Habitat Conversion. The Bay Plan policies do not directly reflect this issue other than to analyze impacts of projects. Currently, proposed sea level rise adaptation projects often include an element of habitat conversion.
 - a. Creating transition zones in established marsh converts existing habitat, but may provide habitat benefits over time. There is significant uncertainty in these projects as to whether appropriate habitat will be created, when it will be created and the value of the created habitat, and whether it will persist.
 - b. Converting mudflats to beaches (sand or cobble), upland or vegetated marsh reduces habitat for species that currently use them. When is it appropriate to convert these habitats, and how much habitat is necessary to provide a healthy Bay ecosystem and the ecosystem services we enjoy?
 - c. How do we address the species needs now while adapting to future conditions?
 - d. How do we value individual habitat types?
 - e. Current Bay Plan policies state subtidal habitats, tidal marshes and flats...should be conserved, restored or increased.
 - f. How does the Commission deal with uncertainty? How do we account for and balance the uncertain outcomes of a project? How do we assure the public benefits of a project?

The Working Group has discussed the importance of transition zones, and the need to include them in restoration projects. It also discussed the need to consider gradual construction of

transitional habitat in existing marshes as sea level rises, rather than in one lift. It has not specifically discussed mudflat conversion to beaches. The question of how to value different habitat has been somewhat discussed in the idea of augmenting stressed habitats. Dealing uncertainty remains a topic that needs further discussion.

4. Mitigation. The Bay Plan policies require mitigation for impacts to existing habitat and species.

- a. Should habitat based projects be required to mitigate for impacts to or conversion of existing habitat for the development of future habitat?
- b. When is an adaption measure sufficient that it should be deemed self-mitigating?
- c. How are temporal impacts considered in comparison to permanent impacts, especially when the period of time the impacts will persist is uncertain?
- d. Should the Commission shift its mitigation requirements to a more ecosystem science and functional unit approach.

The topic has not been addressed.

5. Should there be a separate category and policies for approving “good fill” for habitat-based flood protection and resilience?

- a. Project applicants for restoration and resilience projects argue that the policies are too time-consuming and limiting, and were aimed at development projects.
- b. Resilience projects provide a public good and should have an expedited process with fewer restrictions.
- c. The present policies are predicated on the concept that only beneficial projects should be approved and all projects need to follow similar rules to ensure Bay protection.

The Working Group determined that deeming projects “good fill” or “bad fill” is very difficult given the potential benefits of many different types of projects, viewed through different lenses, and therefore is not a good strategy to pursue.

6. Fill for Restoration Projects After Breach. Breached restoration projects may not achieve the habitat goals due to design, hydrology or sediment supply. Fill may be needed to reach goals or to adapt to sea level rise.

- a. Habitat restoration projects may need additional fill after becoming “Bay,” should the Commission consider fill after breaching sites if it is to adapt to sea level rise or address a habitat issue?
- b. How should the Commission balance the impacts to existing habitat when authorizing fill?
- c. Should there be a temporal component in considering the need for additional fill?

The Working Group largely agreed that placing fill after a project is breached is appropriate, especially to assist projects in reaching its goals or keeping up with sea level rise.

7. Use of Dredged Sediment for Habitat Restoration. Currently the dredging policies limit use of dredged sediment as fill for habitat purposes until the Middle Harbor Enhancement Project succeeds and there is scientific information that supports the need for it, both on a habitat basis and appropriate locations. Dredged sediment could be placed directly in a marsh or within the intertidal/subtidal areas to improve these habitats or augment sediment supply to marshes.
- a. What are the habitat considerations of placing dredged sediment in existing habitat?
 - b. Should dredged sediment be treated differently than upland based soils when considering fill?
 - c. Would the Commission's water quality policies limit the approach of aquatically placing sediment to assist habitats in adapting to sea level rise?
 - d. How would the benefits of placing sediment aquatically for fill to support a marsh be assured, particularly if relying on Bay currents to move material from disposal site to the desired habitat?
 - e. What metrics would be needed to understand the impacts of the placement and the benefits to the target habitat? How does the Commission balance the two?

The Working Group has determined that the type of fill may be important for specific applications. The Working Group has discussed temporary water quality impacts, but not longer term water quality impacts if sediment was repeatedly placed over time. It has not yet discussed how to assess balancing impacts and benefits of the fill in existing habitat.